What is claimed is:

1. A method of supplying power using a main DC power supply for generating a predetermined voltage to supply a first output voltage substantially equal to the predetermined voltage and a second output voltage lower than the predetermined voltage, comprising the steps of:

connecting a first DC power supply for generating the same voltage as the second output voltage in series to a second DC power supply for generating a differential voltage between the first output voltage and the voltage from the first DC power supply, thereby forming the main DC power supply;

connecting a DC-DC converter to the second DC power supply; and

stepping down the voltage output from the second DC power supply to produce the second output voltage by using the DC-DC converter.

2. A power converting apparatus for generating a first output voltage and a second output voltage lower than the first output voltage, comprising:

a first DC power supply for generating the same voltage as the second output voltage;

a second DC power supply, connected in series to the first DC power supply, for generating a voltage corresponding to a difference between the first output voltage and the voltage from the first DC power supply; and

a DC-DC converter, connected to the second DC power supply, for converting the voltage from the second DC power supply to the second output voltage.

3. The power converting apparatus according to claim 2, wherein the DC-DC converter includes a polarity-

inverting type DC-DC converter, the second DC power supply is connected to an input of the polarity-inverting type DC-DC converter, and the first DC power supply is connected to an output of the DC-DC converter.

4. The power converting apparatus according to claim 2, wherein the DC-DC converter includes an insulated DC-DC converter, the second DC power supply is connected to an input of the insulated DC-DC converter, and the first DC power supply is connected to an output of the DC-DC converter.

5. A method of generating a boosted voltage higher than a voltage of a main DC power supply, comprising the steps of:

producing a differential voltage between a target boosted voltage and the voltage of the main DC power supply using a DC-DC converter; and

producing the boosted voltage by adding the differential voltage to the voltage of the main DC power supply.

6. A power converting apparatus for generating a predetermined boosted voltage, comprising:

a DC power supply; and

a DC-DC converter, connected to the DC power supply, for producing a differential voltage between the predetermined boosted voltage and a voltage of the DC power supply, wherein the predetermined boosted voltage is provided as a sum of the voltage of the DC power supply and the differential voltage.

7. A power converting method of supplying a first output voltage substantially equal to a voltage of a main

battery and a second output voltage lower than the voltage of the main battery, comprising the steps of:

forming the main battery by connecting a first battery for generating the same voltage as the second output voltage in series to a second battery for generating a voltage corresponding to a difference between the first output voltage and the voltage of the first battery;

producing the first output voltage by adding the voltages of the first and second batteries;

connecting a charge power supply for generating a voltage lower than the voltage of the main battery to an output of a DC-DC converter;

producing a differential voltage between the voltage of the main battery and the voltage of the charge power supply using the DC-DC converter; and

charging the main battery with a sum of the differential voltage and the voltage of the charge power supply.

8. A power converting apparatus for generating a first DC voltage and a second DC voltage lower than the first DC voltage, comprising:

a first battery for generating the same voltage as the second DC voltage;

a second battery, connected in series to the first battery, for generating a differential voltage between the first DC voltage and the voltage of the first battery; and

a polarity-inverting type DC-DC converter having an input connected to the second battery and an output connected to the first battery, the DC-DC converter including a first switching element and a first diode connected in parallel to each other, a second switching element connected between the output of the DC-DC converter and the first battery, and a second diode connected in

parallel to the second switching element.

9. The power converting apparatus according to claim 8, wherein the first switching element and the first diode are a first MOSFET and the second switching element and the second diode are a second MOSFET.

10. A vehicle comprising:

a running motor operable with a predetermined first operational voltage;

a subload operable with a second operational voltage lower than the first operational voltage;

a main battery assembly, connected to the running motor, for generating the first operational voltage, the battery assembly including a first battery cell for generating the second operational voltage and a second battery cell, connected in series to the first battery cell, for generating a differential voltage between the first operational voltage and the second operational voltage; and

a power converting apparatus, connected between the second battery cell and the subload, for converting the voltage of the second battery cell to the second operational voltage and supplying the second operational voltage to the subload.

11. A power converting apparatus for a motor driven vehicle, comprising:

a main battery assembly, connected between a high-potential power supply and a low-potential power supply, for generating a main output voltage for driving the vehicle motor, the main battery assembly including a first battery cell for generating a first voltage lower than the main output voltage, and a second battery cell, connected

in series to the first battery cell, for generating a second voltage corresponding to a difference between the main output voltage and the first voltage; and

a DC-DC converter, connected to the second battery cell, for converting the second voltage to a low voltage substantially equal to the first voltage.

12. The power converting apparatus according to claim 11, further comprising:

a first voltage sensor for detecting the main output voltage, and

a second voltage sensor for detecting the low voltage; and

wherein the DC-DC converter includes:

a switching element responsive to a control signal;

an inductance connected in series to the switching element; and

a control circuit, connected to the switching element and the first and second voltage sensors, for supplying the switching element with the control signal for controlling ON and OFF actions of the switching element based on detection signals from the first and second voltage sensors.

13. The power converting apparatus according to claim 12, wherein the switching element includes a MOSFET.

14. The power converting apparatus according to claim 12, wherein the control circuit includes:

a triangular wave oscillator for generating a triangular wave signal having a predetermined cycle; and

a comparator for comparing a difference between detection signals from the first and second voltage sensors with the triangular wave signal and generating a pulse

signal according to a comparison result, wherein the control circuit sends the pulse signal as the control signal to the switching element.

15. The power converting apparatus according to claim 14, wherein the control circuit controls a ratio of an ON time of the switching element to an OFF time thereof by changing a pulse width of the pulse signal, thereby adjusting a level of the low voltage.

16. The power converting apparatus according to claim 14, wherein the comparator generates a high-level pulse signal when the difference between the detection signals from the first and second voltage sensors is greater than the triangular wave signal and generates a low-level pulse signal when the difference between the detection signals from the first and second voltage sensors is smaller than the triangular wave signal.

17. A vehicle that os driven using at least electric power, comprising:

a motor for running the vehicle, the motor being operable with a predetermined first operational voltage;

an ancillary unit operable with a second operational voltage lower than the first operational voltage; and

a main battery assembly, connected to the motor, for generating the first operational voltage, the main battery assembly including;

a first battery cell for generating the second operational voltage,

a second battery cell, connected in series to the first battery cell, for generating a voltage corresponding to a difference between the first operational voltage and the second operational voltage, and

a DC-DC converter, connected between the second battery cell and the ancillary unit, for converting the voltage generated by the second battery cell to the second operational voltage.

18. The vehicle according to claim 17, further comprising:

an engine for driving the vehicle in complementary and cooperation with the motor; and

an alternator, connected to the engine and the main battery assembly, for generating electric energy from drive power of the engine and charging the main battery assembly with the electric energy.